



Third West Air Monitor Result

Shepherd, Michael

to:

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)'

12/12/2011 12:43 PM

Hide Details

From: "Shepherd, Michael" <Michael.Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Barnitz (cbamitz@utah.gov)'"  
<cbamitz@utah.gov>



1 Attachment



225718-1.pdf

Joyce & Craig,

We had another positive hit on December 8, 2011. It was chrysotile, see the attached. Please let me know if you have any questions or concerns.

Thanks,

Mike Shepherd  
Project Manager  
Rocky Mountain Power - Major Projects  
801.220.4584 Office  
801.631.1310 Cell  
801.220.2797 Fax  
[michael.shepherd@pacificorp.com](mailto:michael.shepherd@pacificorp.com)



December 12, 2011

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 225718-1  
Project # / P.O. #: None Given  
Project Description: PacifiCorp - 3rd West Substation

David Roskelley  
R & R Environmental  
47 West 9000 South #2  
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 225718-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeanne Orr", is written over a horizontal line.

Jeanne Spencer Orr  
President

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0016

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number: RES 225718-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: PacifiCorp - 3rd West Substation  
 Date Samples Received: December 9, 2011  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: December 9, 2011

Client ID Number	Lab ID Number	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
		(mm <sup>2</sup> )	(L)		(s/cc)	(s/cc)	(s/mm <sup>2</sup> )
3W-120811-N	EM 835054	0.0700	1160	ND	0.0047	BAS	BAS
3W-120811-S	EM 835055	0.0700	1158	ND	0.0047	BAS	BAS
3W-120811-E	EM 835056	0.0700	1156	1	0.0048	0.0048	14.3
3W-120811-W	EM 835057	0.0700	1160	ND	0.0047	BAS	BAS
Blank	EM 835058	NA	0	NA	----	----	----
Blank	EM 835059	NA	0	NA	----	----	----

NA = Not Analyzed  
 ND = None Detected  
 BAS = Below Analytical Sensitivity  
 Average Grid Opening in mm<sup>2</sup> = 0.010

Filter Material = Mixed Cellulose Ester  
 Filter Diameter = 25 mm  
 Effective Filter Area = 385 sq mm

Digitally signed by  
 Charles L. Johnson  
 DN: cn = Charles  
 Johnson, c = US,  
 o = Reservoirs  
 Environmental,  
 email =  
 Reservoirs@reservoirs.com  
 Date: 2011.12.12  
 10:26:24 -0500

DATA QA

# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number: RES 225718-1  
 Client: R & R Environmental  
 Client Project Number / P.O.: None Given  
 Client Project Description: PacifiCorp - 3rd West Substation  
 Date Samples Received: December 9, 2011  
 Analysis Type: TEM, AHERA  
 Turnaround: 24 Hour  
 Date Samples Analyzed: December 9, 2011

Client ID Number	Lab ID Number	Asbestos Mineral	Asbestos Structure Types*				Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for Concentration
			Fibers	Bundles	Clusters	Matrices			
3W-120811-N	EM 835054	ND	0	0	0	0	0	0	0
3W-120811-S	EM 835055	ND	0	0	0	0	0	0	0
3W-120811-E	EM 835056	Chrysotile	1	0	0	0	0	0	1
3W-120811-W	EM 835057	ND	0	0	0	0	0	0	0
Blank	EM 835058	NA							
Blank	EM 835059	NA							

\*See Analytical Procedure for definitions

\*\*C = Excluded from total due to lack of confirmation

\*\*L = Excluded from total for length less than 0.5 micron (AHERA only)

\*\*A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: 12-10-11

J: RES 225718

Due Time: 8:00

# Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80218 • Ph: 303 864-1986 • Fax 303-477-4276 • Toll Free: 888 RES-ENV

P

## SUBMITTED BY:

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

Company: <u>R&amp;R Environmental, Inc.</u>	Company:	Contact: <u>Dave Portelley</u>	Contact:
Address: <u>4714 9000 S. #21</u>	Address:	Phone: <u>901.541.1035</u>	Phone:
<u>Sandy, UT 84070</u>		Fax:	Fax:
Project Number and/or P.O. #:		Cell/pager:	Cell/pager:
Project Description/Location: <u>Rush Corp - 3rd West Substation</u>		Final Date Deliverable Email Address: <u>DAVE@RENVIRO.COM</u>	

ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm		REQUESTED ANALYSIS		VALID MATRIX CODES		LAB NOTES:	
PLM / PCM (TEM) <u>TEM</u>	<u>RUSH</u> (Same Day) <u>X</u> PRIORITY (Next Day) <u>STANDARD</u>	Quant	RCRA 8	Air = A	Bulk = B		
(Rush PCM = 2hr, TEM = 6hr.)		SEM-quant, Micro-vac, ISO-Indirect Preps	TCPLP: Welding Fume, Metals Scan	Dust = D	Paint = P		
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		PCM - 7400A, 7400B, OSHA	ORGANICS: BTEX, MTBE, 8280, GRO, DRO	Soil = S	Wipe = W		
Metal(s) / Dust	<u>RUSH</u> 24 hr. 3-5 Day	DUST - Total, Respirable	OTHER -	Drinking Water = DW	Waste Water = WW		
RCRA 8 / Metals & Welding	<u>RUSH</u> 5 day 10 day	METALS - Analyte(s)		Other = O			
Fume Scan / TCLP				**ASTM E1792 approved wipe media only**			
Organics	24 hr. 3 day 5 Day			Sample Volume (L) / Area	Matrix Code	# Containers	Date Collected mm/dd/yy
**Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.**							Time Collected hh:mm a/p
Special Instructions:							EM Number (Laboratory Use Only)
Client sample ID number: (Sample ID's must be unique)							
1	36120811 - M						
2							
3							
4							
5	Blank						
6	Blank						
7							
8							
9							
10							
11							
12							
13							

Number of samples received: 6 (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

Relinquished By: <u>[Signature]</u>	Date/Time: <u>12/9/11 1300</u>	Sample Condition: On ice Sealed Intact
Laboratory Use Only		Temp. (F°) <u>Y/N</u> <u>Y/N</u> <u>CON</u>
Received By: <u>[Signature]</u>	Date/Time: <u>12-9-11 08:00</u> Carrier: <u>FedEx</u>	
Results:	Contact <u>Dave</u> Page Phone Email Fax Date <u>12/9</u> Time <u>6:50P</u> Initials <u>MD</u>	Contact Page Phone Email Fax Date Time Initials
	Contact Page Phone Email Fax Date Time Initials	Contact Page Phone Email Fax Date Time Initials

Left msg

tracking # 8695 3828 4545

## Attachment I

Key to Count Sheets  
Count Sheets  
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

### Asbestos Type

A = Amosite  
An = Anthophyllite  
C = Chrysotile  
Cr = Crocidolite  
T = Tremolite

### Structure Types

F = Fiber  
B = Bundle  
C = Cluster  
M = Matrix

ND = no structures detected  
M = other structure associated with a matrix  
NAM = Non Asbestos Mineral  
XGB = partly obscured by a grid bar

### Sizing Conversion

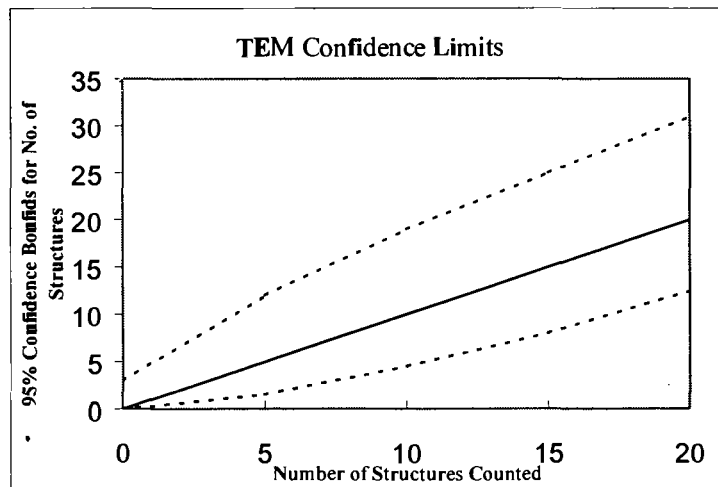
1 length unit = 5 mm on screen = 0.278 micron  
1.80 length units = 0.5 micron  
18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

### TEM Analysts

Jeanne S. Orr  
Nathan DelHiero  
Angela Heitger  
Jonathan Bernard

Paul D. LoScalzo  
Mark Steiner  
Norberto Zimbleman  
Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N(S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1160
Date received by lab	12/9/11
Lab Job Number:	225718
Lab Sample Number:	835054

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	ML
Analysis date	12/9/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	CS-1	ND												
	CS-6	ND					Prer A ~ 50% intact			~ 5% debris				
	G6-1	ND					Prer B ~ 70% intact			~ 5% debris				
	G6-3	ND					Amphibole			12/9/11				
B	K6-31	ND												
	H6-31	ND												
	G6-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

T:\QA\CLab\ITEM\Lab Docs\ITEM Count Sheet rev.1-11.xls

Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Page 1 of \_\_\_\_\_

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	REI
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1158
Date received by lab	12/9/11
Lab Job Number:	225718
Lab Sample Number:	835055

Analyzed by	ck
Analysis date	12/9/11
Method (D=Direct i=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AA
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):	
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	16-3	ND												
	16-3	ND												
	86-1	NP												
	16-1	ND												
B	04-1	ND												
	03-6	ND												
	B3-6	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole C = Chrysotile

NAM = Non-asbestos material

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Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N <u>S</u>
Voltage (KV)	100 KV
Magnification	<u>20KX</u> 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.058 um
Primary filter area (mm <sup>2</sup> )	885
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1156
Date received by lab	12/9/11
Lab Job Number:	225718
Lab Sample Number	835056

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	ML
Analysis date	12/9/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	L6-1	ND												
	K6-1	ND					Prep A ~60% intact ~58. debris							
	H6-1	ND												
	H6-1	ND												
B	C5-3	ND												
	C6-4	ND												
	B4-4	F		1	3	1	on							

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

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Reservoirs Environmental, Inc.  
TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 CX N (S)
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm <sup>2</sup> )	0.01
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm <sup>2</sup> )	385
Secondary Filter Area (mm <sup>2</sup> )	
QA Type	RCD

Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm <sup>2</sup> )	1160
Date received by lab	12/9/11
Lab Job Number:	225718
Lab Sample Number:	835057

## F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Analyzed by	ML
Analysis date	12/9/11
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure Type	No. of Structures		Dimensions		Identification	Mineral Class			Sketch/Comments	1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	C	NAM		Sketch	Photo	EDS
A	E3-3	ND												
	C3-3	ND					Prer A	~70% intact		5% debris				
	G4-3	ND					Prer B	~50% intact		5% debris				
	F4-3	ND								12/9/11				
B	L6-1	ND												
	K6-1	ND												
	H6-1	ND												

LA = Libby-type amphibole

OA = Other (non-Libby type) amphibole

C = Chrysotile

NAM = Non-asbestos material

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## Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm<sup>2</sup> (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

<b>Fiber:</b>	is a structure having a minimum length greater than or equal to 0.5 micron with an aspect ratio of 5:1 or greater with substantially parallel sides.
<b>Bundle:</b>	is a structure composed of three or more fibers in parallel arrangement, with each fiber closer than the diameter of one fiber.
<b>Cluster:</b>	is a structure with fibers in random arrangements such that all fibers are intermixed and no single fiber is isolated from the group.
<b>Matrix:</b>	is a fiber or fibers with one end free and the other end embedded or hidden by a particulate. The exposed fiber end must meet the fiber definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50<sup>th</sup> structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm<sup>2</sup> clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

### Equations Used for Calculations

$$\text{Area Analyzed, mm}^2 = \# \text{ GO counted} \times \text{Average GO Area (mm)}$$

$$\text{Concentration, s/cc} = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2\text{)}}{\text{Average GO area (mm}^2\text{)}} \times \frac{1\text{L}}{1000\text{cc}}$$

$$\text{Filter loading, s/mm}^2 = \frac{\# \text{ Asbestos structures}}{\text{Area Analyzed (mm}^2\text{)}}$$

GO = TEM grid opening